

ABSTRACT OF THE DISCLOSURE

An apparatus and method to produce hydrogen gas a high pressure is disclosed. An electrolyzer is located inside a pressure vessel that is pressurized with high pressure water. The high pressure water is provided to both the anode and cathode sides of the electrolyzer by a pump in the pressure vessel. Oxygen produced at the high pressure on the anode side of the electrolyzer is vented directly into the pressure vessel while hydrogen produced at the high pressure on the cathode side is routed to a separator and is deadheaded. The high pressure hydrogen is periodically routed from the separator to a storage tank by a pressure regulator.